MV-22 Osprey and VMX-22

The MV-22 Osprey tiltrotor is an advanced technology, vertical/short takeoff and landing, multi-purpose tactical aircraft that will replace the current fleet of Vietnam-era CH-46E and CH-53D aircraft currently in Marine Corps service. The MV-22 will join the Expeditionary Fighting Vehicle (EFV) and Landing Craft Air Cushion (LCAC) as an integral part of the Seabasing pillars necessary to execute Expeditionary Maneuver Warfare and, as such, procurement of the Osprey remains the Marine Corps' No. 1 aviation acquisition priority. The MV-22's specific missions will include expeditionary assault from land or sea, raid operations, medium cargo lift, tactical recovery of aircraft and personnel (TRAP), fleet logistic support, and special warfare.

The MV-22's 38-foot prop-rotor system and engine/transmission nacelle mounted on each wing tip allow it to operate as a helicopter for takeoff and landing. Once airborne, the nacelles rotate forward 90 degrees, converting the aircraft into a high-speed, high-altitude, fuel-efficient turboprop aircraft. The MV-22's design also incorporates the advanced but mature technologies of composite materials, fly-by-wire flight controls, and digital cockpits. The Osprey is capable of carrying 24 combat-equipped Marines or a 10,000-lb. external load. With 2,100-nautical-mile range with single aerial refueling, the aircraft also has a strategic self-deployment capability.

The MV-22 is a multi-mission aircraft designed for use by all the armed services. The Marine Corps, Navy, and Air Force are committed to the fielding of this unique aircraft. MV-22 aircraft will be produced in three blocks, as follows:

Block A series aircraft will provide an improved aircraft with which the Marine Corps can train and fight. This includes a software enhancement, nacelle reconfiguration, and additional reliability and maintainability improvements.

Block B series aircraft will provide further improvements in effectiveness and suitability for operators and maintainers to include improved access to the nacelle for inspection purposes and substantial R&M improvements.

Block C configuration aircraft will incorporate mission enhancements.

Flight-testing of the MV-22 was delayed in the aftermath of the two mishaps in 2000 and resumed in May 2002 to address the aeromechanical issues raised by these accidents. Included in the now on-going testing process is a rigorous, strictly regimented inspection process to verify and validate all of the aircraft's modifications and clearances. The Integrated Test Team (ITT) at NAS Pax River, Edwards AFB, MD, VMX-22 (described below), and the Bell facility at Amarillo, TX, have flown more than 4600 hours in the MV-22.

Since the MV-22 is neither a fixed-wing nor rotary-wing platform, it has a unique designation as a tiltrotor. The aeromechanics, composite structure, maintenance concepts, and concept of employment are inherently unique and best addressed in a squadron solely focused on tiltrotor operational test. Marine Tiltrotor Operational Test and Evaluation Squadron Twenty-Two (VMX-22) stood up in August 2003 to meet these requirements. VMX-22 reports to the Commander, Operational Test and Evaluation Force (COMOPTEVFOR), who

in turn reports test data and results to the Office of the Secretary of Defense, Director Operational Test and Evaluation.

VMX-22 is an independent test organization under the operational control of COMOPTEVFOR and administrative control of the Deputy Commandant for Aviation with the charter to:

- Address future requirements;
- Build an operational tactics guide;
- Develop tactics, techniques, and procedures;
- Sponsor tiltrotor issues and concepts of employment; and,
- Prepare the foundation for the training syllabus of the Tiltrotor Fleet Readiness Squadron.

VMX-22 recently completely an Operational Assessment of the MV-22 in preparation for Operational Evaluation, which is currently scheduled to begin the spring of 2005. All events the squadron had planned for the aircraft during OT-IIF were completed on or ahead of schedule. One of the events completed during the assessment was external lift and transport of the new Lightweight 155 Howitzer of 69 nautical miles, which exceeds the Key Performance Parameter. The squadron provides a solid framework for MV-22 operational testing and lays the groundwork for a long-term "Tiltrotor Center of Excellence."